

# High Efficiency, High Output Plastic Melt Waste Compactor (HEHO-PMWC), Phase I

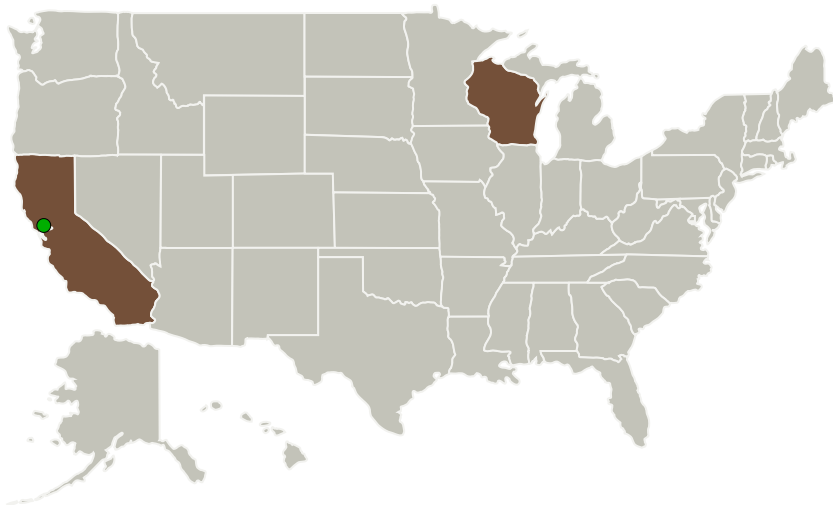
Completed Technology Project (2010 - 2010)



## Project Introduction

ORBITEC proposes to develop processes and waste heat recovery techniques to be incorporated into the existing Plastic Melt Waste Compactor (PMWC) to increase efficiency and throughput. The end goal will be to incorporate these processes and techniques into the PMWC system developed by Ames Research Center (ARC). The PMWC has shown to be the best technology for waste management for space applications. It can compress, recover water, and stabilize the waste in one compact system. Even though the PMWC has been built and is being tested by ARC, many technical challenges remain. This Phase I effort is in response to those challenges to increase the PMWC Technology Readiness Level significantly by the end of Phase II. During Phase I much will be done by computational analysis to analyze the best materials to minimize heat losses and how to most effectively add forced air convection to the process. A benchtop simulator will also be developed and tested to more accurately quantify and validate the computational results. Phase II will expand upon these efforts by incorporating the Phase I designs into the current PMWC or by constructing a next generation PMWC, which will have a TRL of 5 or 6.

## Primary U.S. Work Locations and Key Partners



High Efficiency, High Output  
Plastic Melt Waste Compactor  
(HEHO-PMWC), Phase I

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Organizations Performing Work	Role	Type	Location
Sierra Nevada Corporation(SNC)	Lead Organization	Industry Women-Owned Small Business (WOSB)	Sparks, Nevada
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California
Orbital Technologies Corporation	Supporting Organization	Industry Women-Owned Small Business (WOSB)	Madison, Wisconsin

## Primary U.S. Work Locations

California	Wisconsin
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## Project Transitions

**January 2010:** Project Start**July 2010:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/140080>)

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Sierra Nevada Corporation (SNC)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Jeff R Johnson

**Co-Investigator:**

Jeff T Johnson

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## Technology Maturity (TRL)

Start: **2**  
Current: **3**  
Estimated End: **3**



## Technology Areas

### Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - └ TX06.1 Environmental Control & Life Support Systems (ECLSS) and Habitation Systems
    - └ TX06.1.3 Waste Management

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System